8. Coordination and adpositional indexes in Maltese, Hungarian and beyond

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Abstract: Dieser Beitrag beschreibt adpositionale Indexe und ihr Verhalten in koordinierenden Konstruktionen. Der Schwerpunkt liegt dabei auf Maltesisch (Afroasiatisch, Semitisch), das Variation in koordinierenden Konstruktionen zeigt. So kann eine Präposition entweder vor jedem Konjunkt oder nur vor dem ersten stehen. Adpositionale Indexe werden als ein Faktor genannt, der diese Variation beeinflussen kann. Um den Einfluss adpositionaler Indexe auf koordinierende Konstruktionen in Maltesisch zu bestimmen, werden Daten aus dem Korpus Malti 3.0 analysiert. Die für Maltesisch erzielten Ergebnisse werden daraufhin mit einer breiteren Stichprobe von Sprachen aus einem Kapitel des *World Atlas of Language Structures* (WALS) verglichen, wobei ein besonderer Schwerpunkt auf Ungarisch liegt. Diese Pilotstudie untersucht dadurch auch die Möglichkeit einer typologischen Analyse von Adpositionen – und insbesondere von adpositionalen Indexen – in koordinierenden Konstruktionen. Dabei zeigt sie einen Mangel an verfügbaren Beschreibungen von Koordination unter Beteiligung von Adpositionen in Grammatiken auf.
Schlüsselwörter: Adpositionen; Koordinierende Konstruktionen; Indexe; Maltesisch; Ungarisch

Abstract: This chapter examines adpositional indexes and their behaviour in coordinating constructions. The main focus is on Maltese (Afro-Asiatic, Semitic) which shows variation in coordinating constructions: a preposition may precede either each conjunct or only the first one. Adpositional indexes are reported as one factor influencing this variation. In order to determine the impact of adpositional indexes on coordinating constructions in Maltese, data from the Korpus Malti 3.0 is analysed. The results obtained for Maltese are then compared to a wider sample of languages from a chapter of the *World Atlas of Language Structures* (WALS), with a particular focus on Hungarian. This pilot study thus also explores the possibility of a typological analysis of adpositions – especially adpositional indexes – in coordinating constructions and highlights the scarcity of available data on coordination involving adpositions in grammars.
Keywords: adpositions; coordinating constructions; indexes; Maltese; Hungarian

1. Introduction

This chapter takes a closer look at two widely distributed aspects of language: adpositions and coordination. Coordination seems to be present in every language (cf. Haspelmath 2007: 1). However, even though adpositions are an integral part of most languages (cf. Hagège 2010: 1), typological research related to this word class is quite scarce, with the monograph by Hagège (2010) being one of the few exceptions. Although there are some studies on individual languages (described in Section 3), there is no

research on adpositions in coordinating constructions cross-linguistically. This pilot study can thus shed more light on adpositions and coordination in general.

Specifically, this chapter deals with coordinating constructions that involve identical adpositions or, rather, adpositional indexes. In coordination involving adpositions, there can be scope differences (cf. Haspelmath 2007: 14, Section 2.2): there can either be an overt adposition with both complements, as in (1), or just with one of them, as in (2).

(1) Maltese [Afro-Asiatic, Semitic], two adpositions (Korpus Malti 3.0, news132467)[1]
Ġurnata storika *[[**għal** Malta]$_{PP}$* *u* *[**għal** John Buttigieg]$_{PP}$]$_{COCO}$*
day historical.F [[**for** Malta] and [**for** John Buttigieg]]
'A historic day [[**for** Malta] and [**for** John Buttigieg]].'

(2) Maltese [Afro-Asiatic, Semitic], one adposition (Korpus Malti 3.0, news11100)
*Kien lejl ta' mistrieħ [**għal** [Alexia u Jesmond]$_{COCO}$]$_{PP}$*
be[2] night of rest [**for** [Alexia and Jesmond]]
'It was a night of rest [**for** [Alexia and Jesmond]] [...].'

The choice between the two constructions is often based on semantic factors. In (1), we are dealing with the football coach *John Buttigieg* and the national team of Malta who won against Georgia. To show that the victory was historic for each of the participants separately, independently of their interrelationship, the preposition *għal* 'for' is used overtly with both complements. In (2), on the other hand, the two complements *Alexia* and *Jesmond* are more closely connected as they had a baby the night before, and the preposition *għal* 'for' is used overtly only once. Besides semantic reasons, several other factors have been discussed to influence the placement of adpositions in these constructions in Maltese; one of these factors being "adpositional indexes" (cf. Stolz & Ahrens 2017).

Quantitative research into these constructions and the factors that impact the scope is virtually non-existent. For Maltese, as for other languages, this study is the first step to describing one aspect of coordination more thoroughly (cf. Section 3). In this chapter, I provide a quantitative account

1 Examples are glossed according to the *Leipzig Glossing Rules* (cf. Comrie et al. 2015), except for indefinite which is glossed as INDEF. Grammatical labels are provided at the end of this chapter. Throughout this chapter, adpositions are marked in bold, and indexes are marked by underlining to render the examples more transparent. Examples taken from corpora are analyzed and translated by me.

2 The *mamma tal-verb*, i.e. 3rd person singular masculine perfective, the citation form of a verb, is glossed only lexically throughout this chapter.

of coordinating constructions involving adpositional indexes in Maltese to see to what extent the two different options in coordinating constructions are used. I provide the results of a corpus study for Maltese as a starting point for future cross-linguistic research into this topic.

I then briefly discuss a pilot study of coordination involving adpositions based on the sample taken from "Feature 48A: Person marking on adpositions" of the *World Atlas of Language Structures* (WALS, cf. Bakker 2013). This is done in order to compare the Maltese case with other languages and evaluate the research gap in the area of adpositional indexes and coordination to pave the way for future follow-up studies. One of the sample languages, Hungarian, is examined more closely.

This chapter is organized as follows. The main focus of this chapter – coordination and adpositional indexes – are described in Section 2. Previous research into the coordination of adpositions and specifically adpositional indexes with a special focus on Maltese is presented in Section 3, while the pilot study of the WALS sample is explained in Section 4. The results of both studies are compared in Section 5. Section 6 concludes this study and discusses implications and possible tasks for follow-up studies.

2. Adpositions and coordination

There are mainly two structural phenomena of language that need to be described to understand the methodology of this study. The first one is "adpositional index" to be discussed in Section 2.1. The second aspect is "coordinating construction", which is described in Section 2.2.

2.1. Adpositions and adpositional indexes

The syntactic pattern discussed here involves adpositions, i.e. prepositions and postpositions.[3] For a detailed cross-linguistic discussion of adpositions see Hagège (2010). In some languages, adpositions can have indexes as a complement. Haspelmath (2013) defines these adpositional indexes as a specific form of argument indexes or bound person forms that appear on adpositions. Hagège (2010: 172) refers to this as "inflected adpositions"

3 Ambipositions and circumpositions are not mentioned in any of the source grammars with regard to coordination.

while Haspelmath (2013: 208) calls these "pro-indexes" when there is no full nominal that is co-referential with the bound person form. Terminology is the first problem when dealing with this phenomenon – many different terms are used for the same concept.

The examples below illustrate the phenomenon which I refer to throughout this chapter as "adpositional indexes" in comparison with pronominal complements. The examples illustrate prepositions in Maltese in (3) and (5) and postpositions in Hungarian in (4) and (6). Examples (3) and (4) illustrate an adposition with a pronominal complement, while examples (5) and (6) show an adposition with an index. The examples show that it is irrelevant whether the language has prepositions or postpositions because adpositional indexes can be present on either form of adpositions.

(3) Maltese [Afro-Asiatic, Semitic], preposition and pronoun (Korpus Malti 3.0, news6968)
*[**skont*** *hu]*$_{PP}$ *dan ma sarx* *fil-każ*
[**according_to** 3SG.M] this NEG become.3SG.M.PFV:NEG in:DEF-case
tiegħu
of:3SG.M
'[**According to** him], this was not done in his case.'

(4) Hungarian [Uralic, Hungaric], postposition and pronoun (Kiss & Hegedűs 2021: 49, added boldface)
[én-vel-em ***szemben****]*$_{PP}$[4]
[I-INS-1SG **opposite**]
'[**opposite** to me]'

4 The postposition *szemben* 'opposite' assigns the instrumental case to its complements. The pronominal index *-ed* [2SG] is suffixed to the oblique case marker in (5) and not to the postposition. An example with a nominal complement is provided in (i) to illustrate that the presence of the instrumental case in (5) is not related to the pronominal complement.

(i) Hungarian [Uralic, Hungaric], postposition with index (Hegedűs 2006: 223, added boldface)
a ház-zal ***szemben***
the house-INS **opposite**
'**opposite** the house'

(5) Maltese [Afro-Asiatic, Semitic], preposition with index (Korpus Malti 3.0, literature24)
beda *jferfer* *saqajh* *biex* *jipprova*
begin 3SG.M.IPFV:flutter leg.PL:3SG.M.POSS to 3SG.M.IPFV:try
jħoss *l-art* *[**taħt**-u]*$_{pp}$
3SG.M.IPFV:feel DEF-floor [**under**-3SG.M]
'He began to shake his legs to try to feel the ground [**beneath** him]'

(6) Hungarian [Uralic, Hungaric], postposition with index (Hegedűs 2006: 223, added boldface)
a *könyv* *[(én-)**mellett**-em]*$_{pp}$ *van*
the book [(I)-**next_to**-1SG] be.3SG
'The book is [**next to** me]'

2.2. Coordinating constructions

Secondly, the phenomenon under scrutiny is located in the area of coordination. In coordination, there is a coordinator that links the conjunct or coordinands (cf. Haspelmath 2007: 1–2). We can distinguish between conjunctive coordination or "and-coordination" and disjunctive coordination or "or-coordination". As I am concerned with adpositions here, the conjuncts need to be adpositional phrases.

The specific phenomenon that I am concerned with in this chapter is again referred to by several different names. The ones that are most commonly used are "conjunction reduction" (for all phenomena related to coordination) or "EQUI-P-deletion". However, other authors refer to this with the opposite term, i.e. "doubling" (for Spanish cf. Gudmestad & Clay 2019). I choose the more neutral terms "1-ADP-construction" for constructions where only one adposition is used and "2-ADP-construction" where two adpositions are used so that there are no presumptions about what the underlying structure is.

Adpositions in coordinating constructions can have different scopes, thus leading to the variation between a 1-ADP-construction and a 2-ADP-construction. These scope differences can be there for semantic reasons, as in (7), or for grammatical reasons, as in (8). Examples like (7a) are often interpreted as NP coordination (cf. Haspelmath 2007: 14). In (7a), we are probably dealing with one present while we are dealing with two presents in (7b). The other reason for these scope differences is the degree of grammaticalization of the adposition. In (8), the French preposition *à* 'from' has a high degree of grammaticalization and needs to be used with both complements as in (8a). Example (8b) is not grammatical.

(7) semantic reasons (Haspelmath 2007: 14)
a. *I bought a present **for** [Joan and Marvin]*
b. *I bought a present [**for** Joan] and [**for** Marvin]*

(8) grammaticalization (Haspelmath 2007: 14)
a. *J'ai emprunté ce livre [**à** Jean] et [**à** Marie]*
b. **J'ai emprunté ce livre [**à** Jean et Marie]*
'I borrowed this book **from** Jean and Marie.'

However, in Maltese, simple differences in meaning do not seem to be enough to describe this phenomenon in its entirety. There might be morpho-syntactic reasons as well. This is conceivably the case when at least one of the complements is present as an index, a factor that is described in the next section. When the two features, i.e. coordination and index, are combined in a coordinating construction, we get examples like (9), with an indexed adposition joined to an identical adposition that takes a nominal complement.

(9) Maltese [Afro-Asiatic, Semitic] (Korpus Malti 3.0, news152527)
*U ttieħdu passi **kontri**-ħ*[5] *u **kontra** missieru*
and PASS:take.3PL.PFV step:PL **against**-3SG.M and **against** father:3SG
'And steps were taken **against** him and **against** his father.'

This study is only concerned with coordination of identical adpositions and not cases where different adpositions are coordinated. An example where different postpositions with indexes can also be coordinated is given in (10) for Hungarian. This, however, will remain a topic for a follow-up study.

(10) Hungarian [Uralic, Hungaric] (Thuilier 2011: 217–218)
***benn**-ünk és **mellett**-ünk*
in-1PL and **next_to**-1PL
'**inside** us and **next to** us'

In theory, I include coordination of two pronominal complements of the form *kontri-ja u kontri-h* [against-1SG and against-3SG] 'against me and against him' or *kontri-ja u hu* [against-1SG and 3SG] 'against me and him', however, this structure is not attested in the Maltese text corpus (Korpus Malti 3.0, cf. Section 3.1).[6]

5 Some Maltese prepositions undergo phonological changes when an index is added.

3. Maltese as a starting point

In this section, previous research on adpositions in coordinating constructions and adpositional indexes is briefly reviewed. In Section 3.1, Maltese prepositions and adpositional indexes are described in more detail and a corpus search for structures involving bound person forms is conducted. The order of complements in this construction is the topic of Section 3.2.

In general, there is very little literature that focuses exclusively on adpositions in coordinating constructions. The phenomenon is sometimes discussed in specific contexts, such as Spanish L2 learners (cf. Gudmestad & Clay 2019), Portuguese definite articles (Ximenes & Nunes 2004), or Irish pronouns (Brennan 2009). As far as I know, there is only one study that looks at this phenomenon based on usage frequencies. In a study on coordination involving prepositions in Maltese, Stolz & Ahrens (2017) discuss several factors that might be relevant for the choice of syntactic structure. Stolz & Ahrens (2017) collected all sentences in their text corpus that included at least one of the following seven prepositions *bejn* 'between', *bi* 'with', *fi* 'in', *fuq* 'on', *għal* 'for', *ma'* 'with' and *ta'* 'of'. They then provided eight sentences in total. The adposition with index is the first complement in all examples except for one sentence where the order is reversed. Stolz & Ahrens (2017: 132) thus claim that "[i]f one of the conjuncts involves a pp the complement of which is pronominal (= PRO), ellipsis is blocked" and postulate the preference rule for the order of complements in (11).

(11) (Preference) Rule (linearization)
$\text{PREP}_i \rightarrow$ [overt] / $[[\text{PREP}_i\text{-PRO}]_{PP}$ u $[\_\ \text{NP}]_{PP}]_{COCO}$

Stolz & Ahrens (2017: 132) claim that if one of the complements is present as an index, using two overt forms of the preposition is the only option. They attribute this phenomenon to the "hypothesis of structural asymmetry" of the conjuncts put forward by Borg & Azzopardi-Alexander (1997: 87), according to whom the prepositional phrases that are coordinated need to be structurally identical for one preposition to have scope over the whole construction.

6 As the anonymous reviewer notes, this construction is impossible and meaningless for native speakers of Maltese. However, this construction is mentioned by Borg & Azzopardi-Alexander (1997: 266) for *bejn* 'between' in *bejni u bejnek* 'between you and me' with the meaning 'between us.'

Stolz & Ahrens (2017) mention elements that can change the order of complements. However, since they only looked at a small proportion of Maltese prepositions (seven of 36 prepositions), their hypothesis needs to be checked against a larger sample. In the absence of an inventory of Maltese prepositions in 2017, their database was limited, as was their manually analysed text corpus, and, therefore, they could not provide a full-fledged quantitative analysis for this phenomenon. This factor of adpositional indexes thus needs to be looked at again in order to confidently accept their claims for Maltese prepositions. To this end, two questions must be addressed:

1. What is the preferred structure in coordinating constructions with an adpositional index?
2. Can the preference rule for the order of complements be confirmed, and what elements can change the order?

Except for the first attempts by Stolz & Ahrens (2017) for Maltese, there are no in-depth quantitative analyses of adpositions in coordination. Thus, it is not surprising that bound person forms in coordination have not been analysed quantitatively or from a typological standpoint, possibly because of a scarcity of available descriptions and materials (cf. Section 5).

3.1. Case study: Maltese

Maltese is a Semitic language of the Afro-Asiatic branch. It is spoken mostly in Malta by about 450.000 people (cf. Stolz 2011a: 241). For this study, I use a list of prepositions that is based on the *Bremen List of Maltese Prepositions* (BLOMP) described in Stolz & Levkovych (2020). An updated version, BLOMP 2.0, has recently been published in Stolz & Vorholt (2025). BLOMP 2.0 includes 60 prepositions. Some Maltese prepositions can take adpositional indexes when their complement is pronominal. Maltese prepositions that can take indexes are described in more detail in Schmidt et al. (2020) and Stolz & Vorholt (2025).

Example (12) shows the preposition *inkluż* 'including' that does not take an index when the complement is pronominal (underlined). In comparison, in (13), the preposition *madwar* 'around' is used with the index for the first-person plural *-na* (underlined).

(12) (Korpus Malti 3.0, news72292)
il-bidla *fil-klima* *dinjija* *hi* *priorità*
DEF-change in:DEF-climate worldwide:F 3SG.F priority
ta' *kulhadd* *[**inkluż*** *aħna]*$_{PP}$
of everyone [**including** 1PL]
'Global climate change is a priority for everyone, [**including** us].'

(13) (Korpus Malti 3.0, culture47)
importanti *li* *nkunu* *konxji* *ta'* *x'inhu*
important SUB 1.IPFV:be:PL conscious:PL of what
jiġri *[**madwar**-na]*$_{PP}$
3SG.M.IPFV:happen [**around**-1PL]
'It is important to be aware of what is happening [**around** us].'

Most prepositions only allow one of these options. However, the preposition *skont* 'according to' allows both a free pronoun, as in (14), and a bound person form, as in (15), as its complement.

(14) *skont* 'according to' with index (Korpus Malti 3.0, parl11592)
imbagħad *għidilna* *għalfejn* *[**skont**-ok]*$_{PP}$ *Karl Camilleri*
then tell:IO:1PL why [**according_to**-2SG] Karl Camilleri
mhux *korrett*
NEG:3SG.M:NEG correct
'[…] then tell us why [**in** your **opinion**] Karl Camilleri is not correct.'

(15) *skont* 'according to' with pronoun (Korpus Malti 3.0, news6968)[7]
*[**skont*** *hu]*$_{PP}$ *dan* *ma* *sarx* *fil-każ*
[**according_to** 3SG.M] this NEG become:3SG.M.PFV:NEG in:DEF-case
tiegħu
of:3SG.M
'[**According to** him], this was not done in his case.'

The only relevant prepositions for this study are those that can take indexes. These are 36, which equals 64 % of BLOMP 2.0., and they are listed in (16). Adpositional indexes are an integral part of the Maltese adpositional system, and even some borrowed adpositions can host indexes (cf. Vorholt 2022: 172).

7 Repeated example (3).

(16) Maltese prepositions that can take indexes:
bejn 'between'; *bħal* 'like'; *bi* 'with'; *biswit* 'facing'; *daqs* 'equal to'; *dwar* 'about'; *favur* 'in favour of'; *fi* 'in'; *fost* 'amongst'; *fuq* 'on'; *għajr* 'except'; *għal* 'for'; *għand* 'at s.o.'s place'; *ħdejn* 'beside'; *ħlief* 'except'; *kontra* 'against'; *lejn* 'towards'; *lil* 'to'; *ma'* 'with'; *madwar* 'around'; *maġenb* 'close to'; *matul* 'during'; *minflok* 'instead of'; *mingħajr* 'without'; *mingħala* 'in s.o.'s opinion'; *mingħand* 'from s.o.'; *minn* 'from'; *qabel* 'before'; *qalb* 'amidst'; *qrib* 'near'; *quddiem* 'in front of'; *skont* 'according to'; *ta'* 'of'; *taħt* 'under'; *waqt* 'at the time of'; *wara* 'after'

The paradigm of the preposition *taħt* 'under' is given in (17) for illustration of the morphological behaviour of inflected prepositions.

(17) *taħt-i* 'under me'
taħt-ek 'under you (SG)'
taħt-u 'under him'
taħt-ha 'under her'
taħt-na 'under us'
taħt-kom 'under you (PL)'
taħt-hom 'under them'

An example of a coordinating construction where one of the complements is present as an index is given in (18). The preposition *għal* 'for' appears in front of both complements: in the form *għalih* 'for him' and in its bare form *għal* 'for' in front of the second complement *ommu* 'his mother'.

(18) [Korpus Malti 3.0, literature11]
*Ernest kien lesta l-mejda [**għali**-h u **għal** omm-u]*$_{coco}$
Ernest be ready DEF-table [**for**-3SG.M and **for** mother-3SG]
'Ernest had prepared the table [**for** him and **for** his mother]'

The *Korpus Malti* (version 3.0)[8] is used to determine what patterns Maltese prepositions with adpositional indexes can follow in coordinating constructions. It consists of about 250,000,000 words distributed over texts from ten different categories. It is highly skewed, with parliamentary debates and news texts making up most of it. As the corpus does not include spoken Maltese, the results are only representative of written Maltese.

Constructions either involving only one preposition or involving a preposition with each complement were searched for. The 1-PREP-constructions in (19) and the 2-PREP-constructions in (20) were included in the search.

8 A newer version of the *Korpus Malti* (4.2, 2023) is available now but was not available when the data for this chapter was collected.

(19) a. [[PREP$_i$-PRO]$_{PP}$ *u* [PREP$_i$ NP]$_{PP}$]$_{COCO}$
b. [[PREP$_i$-PRO]$_{PP}$ *jew* [PREP$_i$ NP]$_{PP}$]$_{COCO}$

(20) a. [[PREP$_i$-PRO *u* NP]$_{PP}$]$_{COCO}$
b. [[PREP$_i$-PRO *jew* NP]$_{PP}$]$_{COCO}$

The instances of coordinating constructions involving a bound person form in the corpus are limited. Some examples contradict what Stolz & Ahrens (2017) found for coordinating constructions with adpositional indexes in their sample. Counterexamples with no overt form of the preposition preceding the second conjunct are (21) and (22). The example in (22) illustrates an interesting case where the second conjunct refers back to the first conjunct as indicated by the possessive construction *r-rabta tiegħu* 'his connection'.

(21) (Korpus Malti 3.0, literature20)[9]
*lanqas biss ħarsu [**lej**-ja u Jamie]*$_{COCO}$
not_even just look:3PL.PFV [**towards**-1SG and Jamie]
'They didn't even look [**towards** me and Jamie].'

(22) (Korpus Malti 3.0, news173340)
*wara investigazzjonijiet [**dwar**-u u r-rabta tiegħu*
after investigation:PL [**about**-3SG.M and DEF-connection of:3SG.M
mat-traffikanti tad-droga Kolombjani]$_{COCO}$
with:DEF-trafficker:PL of:DEF-drug Columbian:PL]
'after investigations [**about** him and his connection with Colombian drug traffickers]'

Although these examples show that both constructions in (19) and in (20) are possible, examples with two overt prepositions, as in (18), are much more common in the corpus, as is shown in the subsequent paragraphs.

To see the extent in the form of token frequencies of these constructions, all coordinating constructions that include an adpositional index were extracted from the *Korpus Malti 3.0* and manually analysed. In cases where there were more than 100 hits, 100 hits were randomly selected and the results were extrapolated. Of the 36 Maltese prepositions that can have indexes, eight (*biswit* 'facing'; *għajr* 'except'; *ħlief* 'except'; *maġenb* 'close to'; *matul* 'during'; *mingħala* 'in s.o.'s opinion'; *skont* 'according to'; *waqt* 'at the

9 This example seems to be perceived differently by native speakers. An anonymous reviewer found (21) odd. When I presented this example at a conference (Vorholt 2023), another native speaker noted that this was actually the only possible option for her and that a 2-PREP-construction (i.e. *lejja u lejn Jamie* 'to me and to Jamie') would be very unusual.

time of') do not appear in the corpus in a coordinating construction in that form. Additionally, *ta*' 'of' was excluded from the corpus search due to its ability to mark possession (cf. example (9)).

We now need to compare these results with how the prepositions behave in coordination where no index is present, i.e. two nominal complements, in order to see whether any significant differences can be observed. Figure 1 illustrates this distribution for the prepositions that can have indexes in constructions with nominal complements and constructions with an index. For coordinating construction with an adpositional index, the distribution is almost equal between prepositions that only appear in 2-PREP-constructions or show variation between 1- and 2-PREP-constructions when looking at types. None of the prepositions exclusively appears in 1-PREP-constructions. This is different to simple binary coordination that involves two nominal complements where no preposition exclusively allows for 2-PREP-constructions. Additionally, the share of prepositions that show variation between 1- and 2-PREP-constructions is significantly higher at 67 %. The other third of prepositions is used in coordination only in 1-PREP-constructions. Three of the 36 prepositions that can have indexes do not appear in coordination with nominal complements in the corpus, *biswit* 'facing', *maġenb* 'close to', and *minǧħala* 'in s.o.'s opinion'. This shows us that in constructions involving an adpositional index, 2-PREP-constructions are indeed much more common than in constructions with two nominal complements.

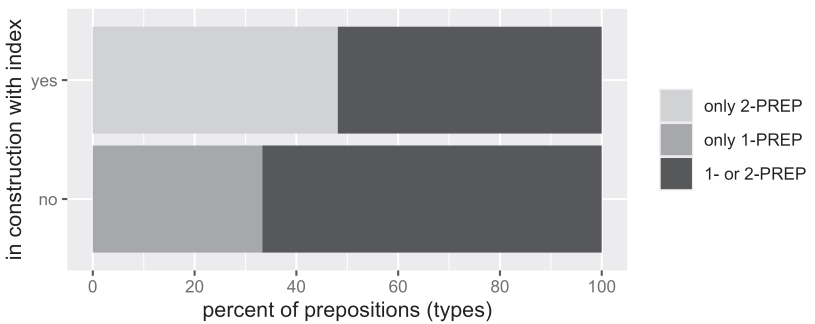

Figure 1: Distribution of prepositions exclusively in 1-PREP-construction or that show variation. Comparison between coordination involving indexes and nominal complements.

The 27 prepositions present in the corpus in construction with an index show different rates. Thirteen prepositions always use an overt form in

front of the second complement, while 14 prepositions allow both 1-PREP-constructions and constructions with two prepositions. The left side of Figure 2 shows the distribution of all prepositions that show variation and have more than 10 tokens in the corpus. The prepositions are ordered according to increasing shares of 1-PREP-constructions.

All the prepositions prefer 2-PREP-constructions when adpositional indexes are involved. The preposition *bejn* 'between' has the highest share of only one overt preposition in these constructions with 30.6 %, followed by *taħt* 'under' with 18.2 %. Half of the prepositions have shares of 1-PREP-constructions below 6 %. The case of *bejn* 'between' is unsurprising as this preposition needs plural complements or coordinated complements because of its semantics (interessive, cf. Hagège 2010: 287) and is discussed below in more detail. The right side of Figure 2 shows the prepositions in the same order as on the left side. Here, the shares of 1- and 2-PREP-constructions are shown in coordination with two nominal complements.[10] The shares show an almost reversed distribution, with 1-PREP-constructions making up the majority of cases. The only exception is *lil* 'to', which is highly grammaticalized (cf. Stolz & Ahrens 2017: 140–141).

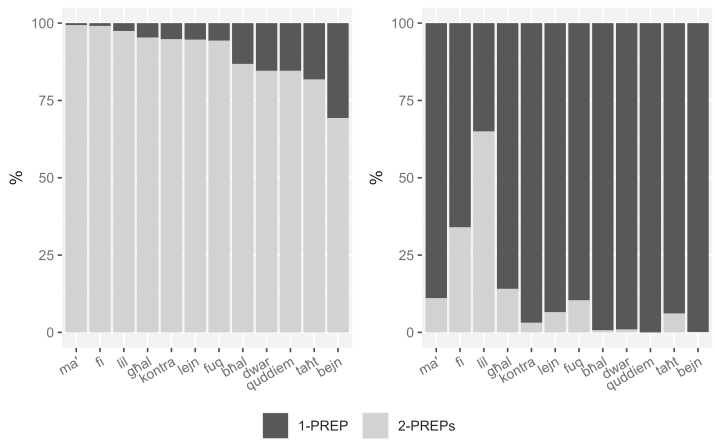

Figure 2: Rate of 1- and 2-PREP-constructions in coordination involving two nominal complements (right) and with indexes (left)

10 The corpus was searched for constructions with one-word complements at phrase or sentence end. No forms with indexes were included. The search input, e.g., for barra 'outside' was "barra (_NOUN|_NOUN-PROP) u (_NOUN|_NOUN-PROP) _X-PUN".

Considering the relatively low frequency of the searched constructions and the low rates of 1-PREP-constructions, it comes as no surprise that Stolz & Ahrens (2017) did not encounter any sentences like these in their sample. Considering this distribution, although 1-PREP-constructions are possible in this construction, it can be confirmed that 2-PREP-constructions are by far the preferred option. The comparison to shares in coordination with two nominal complements also highlights the different distributions in constructions with indexes. Most examples of the structures in (20) with only one overt form of the preposition present with the index are with the preposition *bejn* 'between' as in (23). Even though 1-PREP-constructions are expected for this preposition, 2-PREP-constructions are possible as well (Borg & Azzopardi-Alexander 1997: 266). The corpus includes many examples, like (24).

(23) (Korpus Malti 3.0, literature35)
ħlief għall-ħajta dawl dieħla mix-xaqq
except for:DEF-thread light entering:SG.F from:DEF-crack
mal-art ***[bejn-u*** *u l-bieb]*$_{coco}$
with:DEF-floor [**between**-3SG.M and DEF-door]
'except for the thread of light coming through the crack in the floor, [**between** him and the door].'

(24) (Korpus Malti 3.0, academic534)
fl-ittri ***[bejn-u*** *u* ***bejn*** *il-kardinal*
in:DEF-letter:PL [**between**-3SG.M and **between** DEF-cardinal
Fernando Gonzaga]$_{coco}$
Fernando Gonzaga]
'In the letters [**between** him and Cardinal Ferdinando Gonzaga] [...].'

Examining the factors present in 1-PREP-constructions might help to describe coordination involving two nominals as well. Many of the examples that include only one overt preposition contain the complement *familja* 'family' or *familji* 'families' and a form of the preposition *ta*' 'of' with an index, indicating possession as in (25) or (26). Several hits also have a possessed form of the word *familja* 'family' as a second complement, e.g. (27). This specific complement might be one explanation for why there is no preposition preceding the second conjunct. Both complements are closely connected and form a group, a factor which is often considered to influence coordinating constructions (Stolz & Ahrens 2017, Haspelmath 2007). Thus, the second complement refers back to the first complement.

(25) (Korpus Malti 3.0, news211098)
it-theddid *li* *qed* *isir* *[**lej**-h* *u*
DEF-threat:PL SUB PROG 3SG.M.IPFV:become [**towards**-3SG.M and
l-familja *tiegħu]*$_{coco}$
DEF-family of:3SG.M]
'the threats being made [**towards** him and his family]'

(26) (Korpus Malti 3.0, news131869)
bi *preġudizzju* *irreparabbli* *[għali-hom* *u* *l-familji*
with prejudice irreparable [**for**-3PL and DEF-family:PL
tagħhom]$_{coco}$
of:3PL]
'with irreparable prejudice [**towards** them and their families].'

(27) (Korpus Malti 3.0, news127338)
u *baqa'* *jħaddan* *it-twemmin* *Laburista,*
and remain.3SG.M.PFV 3SG.M.IPFV.embrace DEF-belief Labour
allavolja *kien* *tilef* *l-opportunità* *ta'* *ħajja*
although be lose.3SG.M.PFV DEF-opportunuty of life
aħjar *[għali-h* *u* *familtu]*$_{coco}$
better [**for**-3SG.M and familiy:3SG.POSS]
'And he continued to embrace the Labour Party's beliefs, even though he had lost the opportunity of a better life [**for** himself and his family].'

There are also examples with l-PREP-constructions with other nominal complements besides *familja* 'family'. In (28), the second complement is *pajjiżu* 'his country', and in (29), the complement is *l-partit tiegħu* 'his party'. However, in these examples, the second complement is also possessed and can be interpreted as closely connected to the first complement.

(28) (Korpus Malti 3.0, news2215099)
Morales *qal* *li* *dan* *ma* *kienx*
Morales say.3SG.PFV SUB DEM:M:PROX NEG be.3SG.PFV:NEG
offiża *biss* *[**kontri**-h* *u* *pajjiżu]*$_{coco}$ *imma*
offence just [**against**-3SG.M and country:3SG.POSS] but
r-reġun *tal-Amerika_Latina* *kollha*
DEF-region of:DEF-Latin_America all:3SG.F
'Morales said that this was not only an offence [**against** him and his country] but the entire Latin American region.'

(29) (Korpus Malti 3.0, news120908)
*[**mingħajr**-u* *u* *l-partit* *tiegħ-u]*$_{coco}$ *konna* *se*
[**without**-3SG.M and DEF-party of-3SG.M] be.PFV:1PL FUT
nintilfu *fid-dlamijiet*
1.IPFV:be_lost:PL in:DEF-darkness:PL
'[**without** him and his party] we were going to be lost in the darkness'

I conducted a corpus search to determine whether this is a general trend for coordination involving adpositional indexes in Maltese. All 1-PREP-constructions were analysed regarding the type of second complement. A distinction was made between possessive constructions and other constructions on a syntactic basis as there is a semantic relation (possession) between possessor and possessee. There are three different types of possessive constructions. The type "suffix" refers to examples like (28), where a possessive suffix is present. The type "ta'" applies when a form of the preposition *ta'* 'of' is used to mark possession, as in (29). The type "other" refers to constructions that do not fall into the other two categories but can be analysed as a possessive construction like (30), where a possessive relative clause (cf. Stolz 2011b) modifies the second conjunct. The preposition *bejn* 'between' was excluded from this search as it requires a complement in the collective or plural, as mentioned above.

(30) (Korpus Malti 3.0, parl6957)
joqogħdu *f'* *parti* *fejn* *il-karozzi* *jiġu* *b'*
3.IPFV:live:PL in part where DEF-car:PL 3.IPFV:come:PL with
veloċità *qawwija* *b'* *periklu* *[**għali**-hom* *u* *t-tifel*
speed high:F with danger [**for**-2PL and DEF-boy
żgħir *li* *għandhom]*$_{coco}$
small SUB have:2PL]
'[…] they live in a part where the cars come at high speed with danger [**for** them and the small boy they have]'

Figure 3 shows the distribution of complement types with adpositional indexes for constructions with only one overt form of the preposition. In total, 47 hits correspond to the search criteria. With 29 hits, possessive constructions are more frequent than constructions that do not show possession, with 18 hits. The type "ta'" has the highest share with 19 instances, followed by "suffix" with seven hits and "other" with three instances.

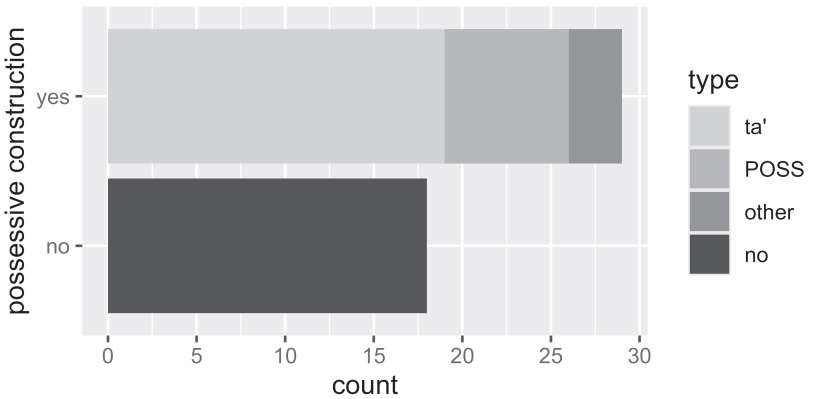

Figure 3: Types of complements in coordination with bound pronouns

In addition to possessive constructions, in examples where no possessive construction is used, the complements can often be interpreted as a group, e.g., the group of Mediterranean countries as in (31) or Maltese and Italian people as in (32).

(31) (Korpus Malti 3.0, news148940)
ħafna nies moħħhom mal-ewwel imur għall-pajjiżi
a_lot people brain:3PL with:DEF-first 3SG.IPFV:go for:DEF-country:PL
tal-Mediterran ***[bħal-na*** *u l-Italja]*$_{coco}$
of:DEF-Mediterranean [**like**-1PL and DEF-Italy]
'[...] many people's thoughts immediately go to the Mediterranean countries [**like** us and Italy].'

(32) (Korpus Malti 3.0, news100)
Min jista' jitkellem ***[daqs-na*** *u*
who 3SG.M.IPFV:be_able 3SG.M.IPFV:talk [**equal_to**-1PL and
l-poplu Taljan]$_{coco}$ *dwar il-problema tal-immigrazzjoni*
DEF-people Italian] about DEF-problem of:DEF-immigration
'Who can speak [**as much as** us and the Italians] about the immigration problem?'

Figure 4 shows the distribution of types of constructions for each preposition in l-PREP-constructions. As this construction only occurs very rarely in the corpus, these results must be interpreted with caution.

The preposition *bħal* 'like' is the most frequent one with ten instances. It also has the highest share of tokens where complements are not in a possessive construction. Due to the semantics of *bħal* 'like', the complements

in these constructions can often be interpreted as a group that shares some characteristics, like the countries that are located in the Mediterranean in (31). For most other prepositions, the shares of some kind of possessive construction cover the majority of cases. However, for *fi* 'in' and *lil* 'to', no overt possessive marking is present in the examples. Interestingly, these two prepositions show relatively high rates of 2-PREP-constructions in constructions with two nominal complements (cf. Figure 2). They need to be analysed more thoroughly with regard to their syntactic functions and possible grammaticalization processes in a follow-up study.

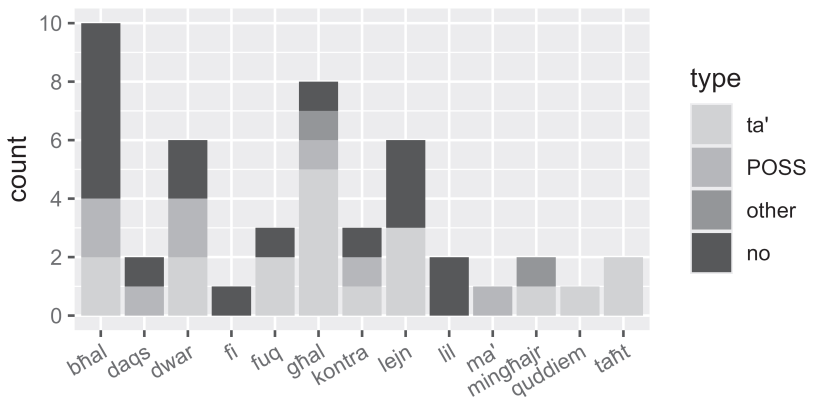

Figure 4: Barplot of types of complements for individual prepositions

What can be gathered from the analysis of the corpus data is that the complement realized as a bound person form does indeed have a major influence on the construction. So, even though the use of only one overt preposition is not entirely blocked, two prepositions are preferred in this context. With the results from the corpus search, the preference rule in (11) postulated by Stolz & Ahrens (2017) can be confirmed to describe the conditions under which a preposition is overtly realized in front of the nominal complements in constructions with an adpositional index. However, it also needs to be noted that the preference rule allows for some variation, especially when the complements include a possessive construction or are closely connected.

3.2. Order of complements

Stolz & Ahrens (2017: 133) notice that in coordinating constructions that include an adpositional index, the order of the complements is usually that in (33a).[11] While they only looked at conjunctive coordination, it can be assumed that the same can be expected for disjunctive coordination, as shown in (33b). They find that in the majority of their sample sentences, the order is that of (33). They also notice that certain elements seem to change the order of complements when an adpositional index is involved and thus show the order in (34). Stolz & Ahrens (2017: 133) mention *stess* 'self' as such an element as in (35). They conclude that this is because the conjunct with the adpositional index gets syntactically heavier.

(33) a. $[[\text{PREP}_i\text{-PRO}]_{PP}\ u\ [\text{PREP}_i\ \text{NP}]_{PP}]_{COCO}$
b. $[[\text{PREP}_i\text{-PRO}]_{PP}\ jew\ [\text{PREP}_i\ \text{NP}]_{PP}]_{COCO}$

(34) a. $[[\text{PREP}_i\ \text{NP}]_{PP}\ u\ [\text{PREP}_i\text{-PRO}]_{PP}]_{COCO}$
b. $[[\text{PREP}_i\ \text{NP}]_{PP}\ jew\ [\text{PREP}_i\text{-PRO}]_{PP}]_{COCO}$

(35) (Korpus Malti 3.0, parl123)
ovvjament trid ukoll tipprogġetta corporate
obviously 3SG.F.IPFV:want also 3SG.F.IPFV:project corporate
*image [**ta**-d-Direttorat u **tagħ**-ha stess]*$_{COCO}$
image [**of**-DEF-directorate and **of**-3SG.F self]
'Obviously, she also wants to project a corporate image [**of** the Directorate and **of** her own]'

A corpus search was conducted to determine whether what Stolz & Ahrens (2017) found out about the order of complements holds for the larger sample. All instances of the structures in (33) and (34) were extracted from the *Korpus Malti 3.0*.[12] All 36 prepositions that can have indexes were included.

In general, there are not many instances of the above-mentioned structures in the corpus. For some prepositions, the corpus search does not generate any hits. These are *biswit* 'facing', *għajr* 'except', *ħlief* 'except', *maġenb* 'close to', *skont* 'according to' and *waqt* 'at the time of'. The prepositions that did appear more than ten times in a coordinating construction involving an index are included in Figure 5. They appear in descending

11 For the search in Section 3.1 only the order in (33a) was included.
12 Coordination where both complements are involved as an index were also included in the search.

order of shares of the first complement coming in the shape of an index. All of the prepositions that appear in these constructions in the corpus confirm that the order in (33) is the preferred option, however to different degrees. Some prepositions do not appear in the constructions in (34) at all while some show percentages of up to 36.8 % (*għand* 'at s.o.'s place'). The preposition *mingħala* 'according to' exclusively appears with an index in the first slot. This is not surprising as this preposition always takes an index. If we pick out the preposition *dwar* 'about', for example, there are four instances in the corpus where the adpositional index is in the second slot compared to 66 examples where it is in the first slot. Three of the four hits include a form of *nnifs* 'self' following the preposition with the adpositional index. One of these examples is provided in (36)[13], while only one (37) of the four hits does not include any additional element after the second complement.

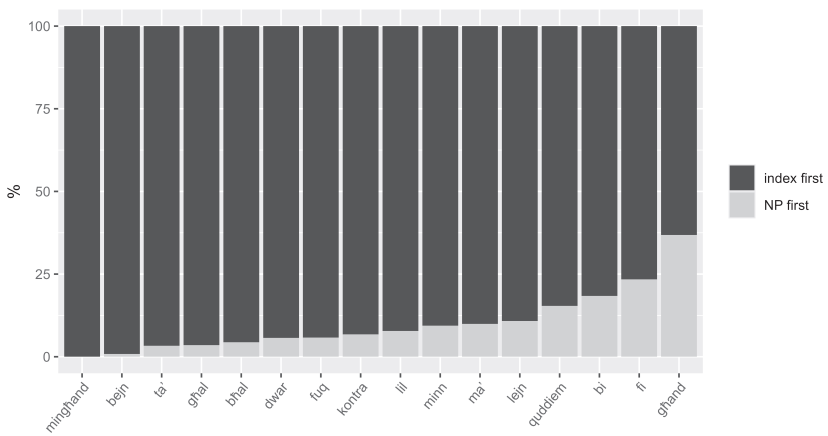

Figure 5: Order of complements in coordination with indexes (at least 10 tokens)

(36) (Korpus Malti 3.0, academic139)

li	*fiha*	*tkellem*	*[**dwar***	*il-familja*	*tiegħu,*
SUB	in:3SG.F	speak:3SG.M.PFV	[**about**	DEF-family	of:3SG.M
dwar	*artu*	*u*	***dwar**-u*		*nnifsu]*$_{COCO}$
about	land:3SG.M	and	**about**-3SG.M		self]

'[…] in which he spoke [**about** his family, his land and himself].'

13 In (36), three complements are present which might have an impact on the order of complements.

(37) (Korpus Malti 3.0, news83663)
semmili *wkoll* *xi* *kurżitajiet* *[**dwar*** *nanntek*
IMP.mention:IO.1SG also some curiosity:PL [**about** grandfather:2SG
u ***dwar**-ek]*$_{coco}$
and **about**-2SG]
'Also (do me the favour and) mention some curiosities [**about** your grandfather and **about** you]'.

In addition to *stess* 'self' and *nnifs* 'self', the corpus search reveals two other elements that can bring about this change in order: *personali* 'personal(ly)', as in (38), and *ukoll/wkoll* 'also', as in (39).

(38) (Korpus Malti 3.0, news107698)
wara *żewġ* *minuti* *kien* *l-istess* *Cutajar* *li*
behind two minute:PL be DEF-same Cutajar SUB
għamilhom *tlieta* *[**għal*** *Birżebbuġa* *u* ***għali**-h*
do.3SG.M.PFV:3PL three [**for** Birżebbuġa and **for**-3SG.M
personali]$_{coco}$
personal]
'After two minutes it was the same Cutajar who made it three [**for** Birżebbuġa and **for** him personally]'.

(39) (Korpus Malti 3.0, parl83)
ħa *ngħidlek* *x'* *intqal* *[**quddiem***
let 1SG.IPFV:say:2SG some be_said.3SG.M.PFV [**in_front_of**
Kohl *u* ***quddiem**-i* *wkoll]*$_{coco}$
Kohl and **in_front_of**-1SG also]
'Let me tell you what was said [**in front of** Kohl and **in front of** me, too]'.[14]

The preference rule for the order of complements in (40) describes the order in which complements can appear. The complement that is not pronominal is realized as the first complement when the pronominal complement is specified by either *nifs* 'self', *personali* 'personal(ly)', *stess* 'self' or *ukoll* 'also'. It takes, however, the right slot when the pronominal complement is not further specified, which is the case in the majority of sentences. This rule is no hard and fast rule, however. There are examples where none of the before-mentioned elements are present, and the order is still reversed as illustrated by (37) above.

14 The adverb *ukoll* 'also' is realized as *wkoll* here for phonological reasons.

(40) Preference rule for order of complements:

$$[\text{PREP}_i\ \text{NP}]_{\text{PP}} \rightarrow \begin{cases} \text{COMP}_1\ /\ [\_\ u\ [\text{PREP}_i - \text{PRO} \begin{Bmatrix} nnifs \\ personali \\ stess \\ ukoll \end{Bmatrix}]_{\text{PP}}]_{\text{COCO}} \\ \text{COMP}_2\ /\ [[\text{PREP}_i - \text{PRO}]_{\text{PP}}\ u\ \_]_{\text{COCO}} \end{cases}$$

As not to complicate the rule further, only the coordinator u 'and' is shown in (40), but the rule applies also to coordination with *jew* 'or'.

4. A typology of coordination

In order to look at coordination involving adpositions and especially adpositional indexes from a typological point of view, a large sample of languages is needed. To determine possible candidates for a pilot study into adpositions in coordinating constructions, the feature "48A: Person Marking on Adpositions" of the WALS (Bakker 2013) was used. The feature has four possible values, illustrated in Table 1, together with the distribution of the 378 languages that are included in the WALS. Maltese is not included in the WALS sample, so there is no overlap between the two studies. About one-third of the languages included for this feature are reported to allow person marking on adpositions, 83 of which are assigned the value "Pronouns only". These 83 languages constitute the sample for my pilot study that was conducted to determine whether other languages show a similar pattern in coordination. A map of these 83 languages is provided at the end of this chapter in Appendix B. A cluster of languages with person marking of pronouns only can be seen in Central Africa, Mesoamerica and the Pacific, while the feature is non-existent in Australia and Southeast Asia (cf. Bakker 2013).

Table 1: Values of Map 48A. Person Marking on Adpositions (Bakker 2013)

Value	Representation
No adpositions	63
Adpositions without person marking	209
Person marking for pronouns only	83
Person marking for pronouns and nouns	23

My pilot study shows whether data on the topic are provided in the source grammars and whether it is sufficient to look at this phenomenon cross-linguistically (Section 4.1). One of the sample languages – Hungarian – is then discussed in more detail in Section 4.2.

4.1. Pilot study

As described in Section 4, my sample included the 83 languages from feature "48A: Person Marking on Adpositions" of the WALS (Bakker 2013) that are categorized as "person marking for pronouns only". The same source that was used for each language in the WALS is used here. Thus, this pilot study is based on grammar mining. All except for one of the source texts used to determine the value of this category were available to me.[15] The 82 available grammars were then manually analysed with regard to information on coordinating constructions involving adpositions.

First, the grammars were checked for entries dealing with coordination involving adpositions in general. The analysis reveals that only five of the grammars mention coordination involving adpositions either implicitly through examples or explicitly. The distribution is illustrated in Table 2.

Table 2: Data availability on coordination in the sources used for the WALS

Availability		**Number of grammars**
not available		1
available	not mentioned	76
	mentioned	5
Total		83

The grammars that mention the phenomenon are Finnish (Sulkala & Karjalainen 1992), Hungarian (Kenesei et al. 2012), Koromfe (Rennison 1997), Nkore-Kiga (Taylor 1985) and to a certain extent, also Persian (Mahootian 1997). The Finnish grammar (Sulkala & Karjalainen 1992: 83) mentions coordination with adpositions and states that "[t]he common element is often left out in coordinating constructions". An example is (41), where only one overt postposition, *kanssa* 'with', is used after the second complement.

(41) Finnish [Uralic, Finnic] (Sulkala & Karjalainen 1992: 83, adapted glosses)
Maija tulee [Matin ja Mikon ***kanssa***$]_{coco}$
Maija come:3SG [Matti:GEN and Mikko:GEN **with**]
'Maija is coming [**with** Matti and Mikko].'

Just like in Finnish, in Koromfe "it is usual to [...] omit an identical postposition after the first NP" (Rennison 1997: 96). Example (42) shows an example of a 1-PREP-construction.

15 The one that was not available to me is the Kurdish (Central) grammar (Fattah 1997).

(42) Koromfe [Atlantic-Congo, Gur] (Rennison 1997: 97, adapted glosses, added boldface)
bʌdin horo a fãĩ [kemde la
(proper name) cook DEF mittel_porridge [(proper name) and
sulɛ ***nɛ]***$_{coco}$
(proper name) **for**]
'Badini cooked some millet porridge [**for** Kemde and Souley (=Souleymane)].'[16]

In a chapter about coordination in the grammar for Nkore-Kiga (Taylor 1985), example (43) is provided that features a coordination with the identical prepositions aha 'on' (cf. Taylor 1985: 86). However, the example is only used to demonstrate the use of the particle *na/n'* for coordination, and the use of the prepositions is not commented on. I include it in this study even though it is unclear whether both adpositions have to be overtly expressed.

(43) Nkore-Kiga [Atlantic-Congo, Bantu] (Taylor 1985: 55, adapted glosses, added boldface)
[aha *meeza n'* ***aha*** *ntebe]*$_{coco}$
[**on** table and **on** chair]
'[**on** the table and **on** the chair]'

In Persian, the preposition *be* 'to' needs to precede each conjunct in a coordinating construction as in (44b). However, in simple sentences, it is typically omitted as in (44a) (cf. Mahootian 1997: 60, 74, 84). However, the grammar does not mention cases in which other prepositions are involved. This example is also not what I classify as coordination involving adpositions, as two different clauses with EQUI-V deletion are coordinated here, 'Sohala went (to the Bazar)' and 'Sima went (to the cinema)'.

(44) Persian [Indo-European, Iranian] (Mahootian 1997: 84, added boldface)
a. *soheyla raeft* ***(be)*** *bazar*
Sohala went (**to**) bazzar
'Sohala went **to** the bazzar.'
b. *soheyla raeft* ***be*** *bazar-o sima* ***be*** *sinema*
Sohala went **to** bazzar-and Sima **to** movies
'Sohala went **to** the bazzar and Sima **to** the movies.'

This pilot study highlights that coordination involving adpositions is rarely mentioned in reference grammars. A possible reason for this limited data might be that languages can have different restrictions on the categories that can be coordinated. Haspelmath (2007: 22) notes that "[s]ometimes

16 Original translation: 'Kemde cooked some millet porridge for Badini and Souley (=Souleymane).'

languages are also selective with respect to which coordinand types they even allow to be coordinated". However, this was not explicitly mentioned in any of the analysed grammars.

As a second step, it was determined whether the reference texts mentioned the specific case discussed here – coordination involving adpositional indexes. This special case of coordinating construction is not mentioned in the grammars of any of the above four languages. However, the next section shows that the Hungarian reference grammar gives more detailed information.

4.2. Hungarian

In feature 48A of the WALS (Bakker 2013), Hungarian is assigned the value "person marking for pronouns only". Coordination of adpositions is explicitly mentioned in the Hungarian grammar (Kenesei et al. 2012: 86) and it is the only one in the sample that also comments on adpositional indexes in coordination (cf. Kenesei et al. 2012). For this reason, it was chosen for a closer examination or qualitative description, especially since, in contrast to Maltese, Hungarian uses postpositions and can thus shed some light on this other type of adposition.

The reference grammar by Kenesei et al. (2012) provides the example in (45) for coordination involving identical adpositions, in this case, the postposition *fölött* 'above'. The postposition can either be used after each complement or just after the second one. Compared to prepositions in these constructions, it is not the first but the second slot that needs to be filled, i.e. backward reduction or catalipsis (cf. Hasplemath 2007: 39).

(45) (Kenesei et al. 2012: 86)
Péter ***(fölött)*** *és* *Anna* ***fölött***
Peter **(above)** and Anna **above**
'**above** Peter and **(above)** Anna.'

Kenesei et al. (2012) explicitly mention the case of adpositions with bound person forms in coordinating constructions. The examples they provide illustrate that both conjuncts need the postposition in these constructions, as in (46a), while example (46b) is not grammatical.

(46) adapted, Kenesei et al. (2012: 87)
a. ***fölött***-*ed* *és* *Péter* ***fölött***
above-2SG and Peter **above**
'**above** you and Peter'
b. **te* *és* *Péter* ***fölött***-*(etek)*
2SG and Peter **above**-(2PL)
'**above** you and Peter'

Kiss & Hegedűs (2021: 68) discuss what they refer to as "conjunction reduction" for different kinds of Hungarian postpositions and case suffixes. One of the types of postposition assigns a case to the conjunct, as in (47). Note that *-hoz* [-ALL] is present on both conjuncts while the postposition *közel* 'close to' is only present once in (47). Even though they also provide examples for other kinds of postpositions, they do not mention coordination, including indexes in this context.

(47) Kiss & Hegedűs (2021: 68)
a *ház-hoz* *és* *a* *tó-hoz* ***közel***
the house-ALL and the lake-ALL **close_to**
'**close to** the lake and the house'

Kiss & Hegedűs (2021: 50–51) list 30 postpositions that can take indexes. The *Hungarian Gigaword Corpus* (MNSZ2) was searched for adpositional indexes in conjunctive coordination to generate more data for the specific constructions analysed in this chapter. Not all postpositions were included in the search. The corpus has 1.5 billion tokens distributed over six different genres (Oravecz et al. 2014: 1721).

The corpus search generated only a few hits; all genuine coordinating constructions include the postposition *között* 'between'. Even though the postposition *között* 'between' can take indexes, example (48) shows that a coordination involving a pronominal complement only features the postposition after the second complement, and the first complement is present as the pronoun *én* 'I' instead of an index. This is unlike (46a), where an overt form of the adposition is present with each complement. However, as discussed above for Maltese (cf. Section 3.1), adpositions with the meaning 'between' (interessive) need either plural complements or coordinated complements and thus constitute a special case. Nevertheless, there is some variation between 1- and 2-PREP-constructions with the postposition *között* 'between', as example (49) shows in Hungarian as well.

(48) (MNSZ2, doc#1116)

a	*két*	*fiam*	*közti*	*testvéri*	*kapcsolat*		
DEF	two	son:1SG:POSS	between:ADJR	brotherly:ADJR	relationship		
talán	*annyival*	*erősebb,*	*hogy*	*a*	*fiúk*	*közt*	*kisebb*
perhaps	so_much:COM	strong:SUP	how	DEF	boy:PL	amid	small:SUP
a	*korkülönbség,*	*mint*	*annak*	*idején*	*[én*	*és*	
DEF	age_difference	than	that.DAT	in.time	[1SG	and	
Csilla	***között]*** $_{coco}$						
Csilla	**között**]						

'The brotherly relationship between my two sons is perhaps even stronger because the age difference between the boys is smaller than [**between** me and Csilla] at that time.'

(49) (MNSZ2, doc#64)

kettőnk	*között*	*nemcsak*	*munkatársi,*		*hanem*	
two:POSS.1PL	between	not.only	colleague:ADJR		but	
elvtársi	*viszony*	*van,*	*pont*	*olyan,*	*mint*	
comarade:ADJR	relation	be.PRS.3SG	just	as	than	
[között-*em*	*és*	*Giliszta*	***között]*** $_{coco}$			
[**between**-1SG	and	Giliszta	**between**]			

'[...] between the two of us, there is not only a working relationship, but also a comradely one, just like [**between** me and Gilizta].'

The next aspect of coordination with an adpositional index is the order of complements. Kenesei et al. (2012: 87) provide the example in (46a), where the adposition with index is in the first slot. However, they do not mention whether this is the normal order or if the reversed order is also possible. Thus, this also needs to be checked in the corpus.

The search reveals that both orders of the coordinating construction are present in the corpus. In (50), the adposition with index (*előlünk* 'from in front of us') appears in the first slot, while in (51), the adposition with index (*nélkülem* 'without me') occupies the second slot.

(50) (MNSZ2, doc#2489)

bármint	*is*	*testnek*	***[elől-****ünk*		*és*	*a*
anything	also	do.PRS:3PL.INDEF	[**in_front_of.from**-1PL		and	DEF
közvélemény	***elől]*** $_{coco}$		*is*	*eltitkolják*		
public	**in_front_of.from**]		also	away:do.PRS:3PL.DEF		

'Whatever they do, they hide it [**from** us and **from** the public]. (lit. they hide it **from in front of** us and **from in front of** the public)'

(51) (MNSZ2, doc#2493)
a *válogatott* *jó* *kezekben* *lesz* *[Karel Poborsky*
DEF national_team good hand:PL:INE be.FUT.3SG [Karel Poborsky
nélkül *és* ***nélkül-****em]*$_{coco}$
without and **without**-1SG]
'the national team will be in good hands [**without** Karel Poborsky and **without** me]'

A quantitative analysis of coordination involving adpositions in Hungarian needs to be conducted in a follow-up study.

5. Overall results

Table 3 shows the preferred patterns for each construction and language. For the languages Finnish, Hungarian, Koromfe, Nkore-Kiga and Persian, the analysis is based on the information available in the grammars described in Section 4 above. As most grammars did not state the frequency of different constructions, if not otherwise indicated, it is assumed that the form described in the grammar is the most common. For Maltese, the data were generated in the study described in Section 3.1 and are based on corpus data.

For coordination that involves adpositions, a 1-PREP-construction seems to be most common for four of the six languages, while a 2-PREP-construction is preferred in two of the six languages. Coordination involving adpositional indexes was only mentioned.

Hungarian, as shown in Section 4.2, like Maltese prefers to use a 2-PREP-construction when adpositional indexes are present, while a 1-PREP-construction can only be used in very restricted circumstances.

Table 3: Preferred patterns in coordination

Pattern in coordination		**Languages**
with adpositions:	1-ADP	Finnish, Hungarian, Koromfe, Maltese
	2-ADPS	Nkore-Kiga, Persian
with adpositional indexes:	1-ADP	–
	2-ADPS	Hungarian, Maltese

6. Conclusions

This study has shown that coordinating constructions involving adpositional indexes show an inverse distribution to coordination with two nominal complements in Maltese. 2-PREP-constructions are used in the overwhelming majority of instances. However, under very specific circumstances, a 1-PREP-construction is also possible or even obligatory. It remains for follow-up studies to determine whether this pattern can also be observed in spoken Maltese since there is no sufficiently large corpus available yet for a feasible analysis[17].

The analysis of coordinating constructions involving indexes confirms the preference for the order of complements proposed by Stolz & Ahrens (2017: 133). The first slot is filled by the adpositional index, while the nominal complement takes the second slot. This order is only reversed when certain elements are present.

Furthermore, this study has clearly shown that much more research is needed in the area of adpositional indexes and the coordination of adpositions in general. A cross-linguistic analysis of coordination involving adpositions is not possible on the basis of grammars alone, as this phenomenon is seldom explicitly mentioned. It remains to be seen whether material for languages that were not part of the WALS sample shows more promising documentation. It might be possible that other texts describe the phenomenon in the languages of this sample or that relevant parts of the texts were overlooked due to different terminology since Bakker (2013) also notes the difficulty that arose when classifying the languages of the WALS sample.

Even though the available data were quite limited, the analysis has already revealed differences between languages. Data for more languages would certainly open up an even bigger array of possible characteristics in coordination. A closer examination of one of the languages that form part of the sample – Hungarian – gave some more substantial insights. While the Hungarian reference grammar (cf. Kenesei et al. 2012: 87) does not allow a 1-ADP-construction when one complement is pronominal, the qualitative analysis of data from the *Hungarian Gigaword Corpus* shows that the picture is more complex. An in-depth analysis of Hungarian data is thus needed to describe adpositional coordination satisfactorily.

17 See Vella et al. (2024) for a detailed description of the current state of spoken Maltese corpora.

Despite the dearth of available data, the languages included in this study can still provide important insights for future cross-linguistic research of adpositional indexes and coordination. Both Maltese and Hungarian show that adpositional indexes can have a major impact on the form of the coordinating constructions and cannot simply be subsumed under coordination involving adpositions in general. This study can thus be seen as the first step for a future typological study on adpositional indexes involved in coordinating constructions.

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Abbreviations

1 = first person, 2 = second person, 3 = third person, ADJR = adjectivizer, ADP = adposition, ALL = allative, COCO = coordinating construction, COM = comitative, COMP = complement, DAT = dative, DEF = definite, DEM = demonstrative, F = feminine, FUT = future, GEN = genitive, IMP = imperative, INDEF = indefinite, INE = inessive, INS = instrumental, IO = indirect object, IPFV = imperfective, M = masculine, NEG = negative, NP = noun phrase, PASS = passive, PREP = preposition, PFV = perfective, PL = plural, PP = pre-/postpositional phrase, POSS = possessive, PRO = pronoun, PROG = progressive, PROX = proximal, PRS = present, SG = singular, SUB = subordinator, SUP = superlative, V = verb

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Appendix A: List of sample languages with sources

Language	**Source**
Ainu	Tamura, Suzuko. 2000. *The Ainu Language.* (ICHEL Linguistic Studies 2). Tokyo: Sanseido.
Amharic	Hudson, Grover. 1997. Amharic and Argobba. In: Hetzron, Robert (ed.), *The Semitic Languages*, 457–485. London: Routledge.
Anejom	Lynch, John. 1982. Anejom Grammar Sketch. In: *Papers in Linguistics in Melanesia 4.* (Pacific Linguistics, Series A – 64), 93–154. Canberra: Australian National University.
Anêm	Thurston, William R. 1982. *A Comparative Study in Anem and Lusi* (Pacific Linguistics, Series B – 83). Canberra: Australian National University.
Arabic (Egyptian)	Gary, Judith O. & Gamal-Eldin, Saad. 1982. *Cairene Egyptian Colloquial Arabic* (Lingua Descriptive Studies 6). Amsterdam: North-Holland.
Au	Scorza, David. 1985. A Sketch of Au Morphology and Syntax. In: *Papers in New Guinea Linguistics 22.* (Pacific Linguistics, Series A – 63). Canberra: Australian National University.
Aymara (Central)	Yapita. 1988. *Aymara, compendio de estructura fonológica y gramatical.* Gainesville: Aymara Foundation.
Bagirmi	Stevenson, R. C. 1969. *Bagirmi Grammar* (Linguistic Monograph Series 3). Khartoum: Sudan Research Unit, University of Khartoum.
Berber (Middle Atlas)	Penchoen, Thomas G. 1973. *Étude syntaxique d'un parler berbère.* Naples: Centro di Studi Magrebini.
Berta	Triulzi, A. & Dafallah, A. A. & Bender, M. L. 1976. Berta. In: Bender, M. Lionel (ed.), *The Non-Semitic Languages of Ethiopia*, 513–532. East Lansing: African Studies Center, Michigan State University.
Burushaski	Berger, Hermann. 1974. *Das Yasin-Burushaski (Werchikwar).* Wiesbaden: Harrassowitz.
Candoshi	Anderson, Loretta & Wise, Mary R. 1963. *Contrastive features of Candoshi clause types.* (Studies in Peruvian Indian Languages 1). Norman: SIL of the University of Oklahoma.
Canela	Popjes, Jack & Popjes, Jo. 1986. Canela-Krahô. In: Derbyshire, Desmond C. & Pullum, Geoffrey K. (eds.), *Handbook of Amazonian Languages* 1, 128–199. Berlin: Mouton de Gruyter.

Language	Source
Chácobo	Prost, Gilbert R. 1962. Signalling of transitive and intransitive in Chacobo (Pano). *International Journal of American Linguistics* 28. 108–118.
Chamorro	Topping, Donald M. 1973. *Chamorro Reference Grammar.* Honolulu: University of Hawaii Press.
Chinantec (Lealao)	Rupp, James E. 1989. *Lealao Chinantec Syntax.* (Studies in Chinantec Languages 2). Dallas, Texas: Summer Institute of Linguistics and The University of Texas at Arlington.
Coptic	Layton, Bentley. 2000. *A Coptic Grammar.* Wiesbaden: Harrassowitz Verlag.
Dani (Lower Grand Valley)	Bromley, H. M. 1961. *The Phonology of Lower Grand Valley Dani: A Comparative Structural Study of Skewed Phonemic Patterns.* (Verhandelingen van het Koninklijk Instituut voor Taal, Land en Volkenkunde 34). s-Gravenhage: Martinus Nijhoff.
Erromangan	Crowley, Terry. 1998. *An Erromangan (Sye) Grammar.* Honolulu: University of Hawaii Press.
Evenki	Nedjalkov, Igor. 1997. *Evenki* (Routledge Descriptive Grammars). London / New York: Routledge.
Ewe	Pasch, Helma. 1995. *Kurzgrammatik des Ewe.* Köln: Köppe.
Finnish	Sulkala, Helena & Karjalainen, Merja. 1992. *Finnish* (Descriptive Grammar Series). London: Routledge.
Fur	Jakobi, Angelika. 1990. *A Fur Grammar: Phonology, Morphophonology, and Morphology.* Hamburg: Helmut Buske Verlag.
Greenlandic (West)	Fortescue, Michael. 1984. *West Greenlandic.* (Croom Helm Descriptive Grammars). London: Croom Helm.
Guaraní	Gregores, Emma & Suárez, Jorge A. 1967. *A Description of Colloquial Guaraní.* The Hague: Mouton.
Hausa	Robinson, Charles H. 1942. *Hausa Grammar.* London: Kegan Paul.
Hebrew (Modern)	Glinert, Lewis. 1989. *The Grammar of Modern Hebrew.* New York: Cambridge University Press.
Hixkaryana	Derbyshire, Desmond C. 1979. *Hixkaryana.* (Lingua Descriptive Studies 1). Amsterdam: North-Holland.
Huitoto (Minica)	Minor, Eugene E. & Minor, Dorothy A. & Levinsohn, Stephen H. 1982. *Gramática pedagógica Huítoto.* Bogotá: Summer Institute of Linguistics.
Hungarian	Kenesei, István & Vago, Robert M. & Fenyvesi, Anna. 1998. *Hungarian* (Descriptive Grammars). London / New York: Routledge.
Ijo (Kolokuma)	Williamson, Kay. 1965. *A Grammar of the Kolokuma Dialect of Ijo* (West African Language Monographs 2). Cambridge: Cambridge University Press.
Iquito	Eastman, Robert & Eastman, Elizabeth. 1963. Iquito syntax. In: Waterhouse, Viola G. (ed.), *Studies in Peruvian Indian Languages 1.* (Summer Institute of Linguistics Publications in Linguistics and Related Fields 9), 145–192. Norman: Summer Institute of Linguistics of the University of Oklahoma.
Irish	MacEoin, Gearóid. 1993. Irish. In: Ball, Martin J. & Fife, James (eds.), *The Celtic Languages*, 101–144. London: Routledge.
Karitiâna	Storto, Luciana R. 1999. Aspects of a Karitiana Grammar. Cambridge, Mass.: Massachusetts Institute of Technology dissertation.
Kilivila	Senft, Gunter. 1986. *Kilivila, the Language of the Trobriand Islanders* (Mouton Grammar Library 3). Berlin: Mouton de Gruyter.

Language	Source
Koasati	Kimball, Geoffrey. 1991. *Koasati Grammar.* Lincoln, Nebraska: University of Nebraska Press.
Koromfe	Rennison, John R. 1997. *Koromfe.* (Descriptive Grammar Series). London: Routledge.
Kosraean	Lee, Kee-Dong. 1975. *Kusaiean Reference Grammar*. Honolulu: The University Press of Hawaii.
Kurdish (Central)	Fattah, Muhammad M. 1997. *A Generative Grammar of Kurdish*. University of Amsterdam dissertation.
Lakhota	Buechel, Eugene. 1939. *A Grammar of Lakota*. Rosebud, South Dakota: Rosebud Educational Society.
Lango	Noonan, Michael. 1992. *A Grammar of Lango.* (Mouton Grammar Library 7). Berlin: Mouton de Gruyter.
Larike	Laidig, Wyn D. 1993. Insights from Larike Possessive Constructions. *Oceanic Linguistics* 32. 312–351
Lokono	Pet, Willem J. A. 2011. *A Grammar Sketch and Lexicon of Arawak* (Lokono Dian). Dallas: SIL International.[18]
Maba	Trenga, Georges. 1947. *Le Bura-Mabang du Ouadaï.* Paris: Institut d'Ethnologie, Université de Paris.
Macushi	Abbott, Miriam. 1991. Macushi. In: Derbyshire, Desmond C. & Pullum, Geoffrey K. (eds.), *Handbook of Amazonian Languages* 3, 23–160. Berlin: Mouton de Gruyter.
Malagasy	Domenichini-Ramiaramanana, Bakoly. 1977. *Le malgache: essai de description sommaire*. Paris: Société d'Études Linguistiques et Anthropologiques de France.
Mbay	Keegan, John M. 1997. *A Reference Grammar of Mbay.* (Lincom Studies in African Linguistics 14). München: Lincom Europa.
Mixtec (Chalcatongo)	Macaulay, Monica. 1996. *A Grammar of Chalcatongo Mixtec.* (University of California Publications in Linguistics 127). Berkeley: University of California Press.
Mupun	Frajzyngier, Zygmunt. 1993. *A Grammar of Mupun.* Berlin: Dietrich Reimer Verlag.
Murle	Arensen, Jonathan E. 1982. *Murle grammar.* (Occasional Papers in the Study of Sudanese Languages 2). Juba, Sudan: Summer Institute of Linguistics and University of Juba.
Ngiti	Kutsch Lojenga, Constance. 1994. *Ngiti: a Central Sudanic Language of Zaire.* (Nilo-Saharan Linguistic Analyses and Documentation 9). Köln: Rüdiger Köppe.
Nubian (Dongolese)	Armbruster, Charles Herbert. 1960. *Dongolese Nubian: A Grammar*. Cambridge: The University Press.
Nivkh	Gruzdeva, Ekaterina. 1998. *Nivkh.* (Languages of the World/Materials 111). München and Newcastle: Lincom Europa.

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Language	Source
Nkore-Kiga	Taylor, Charles. 1985. *Nkore-Kiga.* (Croom Helm Descriptive Grammars). London: Croom Helm.
Noon	Soukka, M. 2000. *A Descriptive Grammar of Noon.* (Lincom Studies in African Linguistics 40). München: Lincom Europa.
Rama	Grinevald, Colette G. 1988. *A Grammar of Rama (Report to National Science Foundation BNS 8511156).*
Paamese	Crowley, Terry. 1982. *The Paamese Language of Vanuatu* (Pacific Linguistics, Series B 87). Canberra: Australian National University.
Persian	Mahootian, Shahrzad. 1997. *Persian.* (Descriptive Grammars). Hoboken: Routledge.
Retuarã	Strom, Clay. 1992. *Retuarã Syntax.* (Studies in the Languages of Colombia 3). Dallas: Summer Institute of Linguistics and The University of Texas at Arlington.
Selknam	Najlis, Elena. 1973. *Lengua selknam.* (Filología y Lingüística 3). Buenos Aires: Universidad de Salvador.
Salinan	Turner, Katherine. 1987. *Aspects of Salinan Grammar*. University of California, Berkeley: PhD thesis.
Tawala	Ezard, Bryan. 1997. *A Grammar of Tawala, an Austronesian Language of the Milne Bay Area, Papua New Guinea.* (Pacific Linguistics, Series C 137). Canberra: Australian National University.
Slave	Rice, Keren. 1989. A Grammar of Slave. (Mouton Grammar Library 5.) Berlin: Mouton de Gruyter.
So	Carlin, Eithne. 1993. *The So Language.* (Afrikanistische Monographien 2). Köln: Institut für Afrikanistik, Universität zu Köln.
Nenets	Collinder, Bjorn. 1957. *Survey of the Uralic languages.* Stockholm: Almqvist and Wiksell.
Temiar	Benjamin, Geoffrey. 1978. An outline of Temiar grammar. In: Jenner, Philip N. & Laurence C. Thompson & Starosta, Stanley (eds.), *Austroasiatic Studies: Part 1.* (Oceanic Linguistics special publication 13), 129–187. Honolulu: University Press of Hawaii.
Tepehuan (Northern)	Bascom, Burton. 1982. Northern Tepehuan. In: Langacker, Ronald W. (ed.), *Studies in Uto-Aztecan grammar*. Volume 3: Uto-Aztecan Grammatical Sketches, 267–393. Dallas: Summer Institute of Linguistics and the University of Texas at Arlington.
Tigak	Beaumont, Clive H. 1979. *The Tigak Language of New Ireland.* (Pacific Linguistics, Series B 58). Canberra: Australian National University.
Tiriyo	Meira, Sergio. 1999. *A Grammar of Tiriyo*. Houston: Rice University dissertation
Trique (Copala)	Hollenbach, Barbara E. 1992. A syntactic sketch of Copala Trique. In: Bradley, C. Henry & Hollenbach, Barbara E. (eds.), *Studies in the Syntax of Mixtecan Languages* 4, 173–431. Dallas: Summer Institute of Linguistics, University of Texas, Arlington.
Uma	Martens, Michael P. 1988. Notes on Uma verbs. In: Steinhauer, H. (ed.), *Papers in Western Austronesian Linguistics* 4, 167–237. Canberra: Australian National University.
Ura	Crowley, Terry. 1999. *Ura: A Disappearing Language of Southern Vanuatu* (Pacific Linguistics, Series C – 156). Canberra: Australian National University.

Language	Source
Urubú-Kaapor	Kakumasu, James. 1986. Urubu-Kaapor. In: Derbyshire, Desmond C. & Pullum, Geoffrey K. (eds.), *Handbook of Amazonian Languages* 1, 326–403. Berlin: Mouton de Gruyter.
Usan	Reesink, Ger P. 1987. *Structures and Their Functions in Usan: a Papuan Language of Papua New Guinea*. Amsterdam: John Benjamins.
Warekena	Aikhenvald, Alexandra Y. 1998. Warekena. In: Derbyshire, Desmond C. & Pullum, Geoffrey K. (eds.), *Handbook of Amazonian Languages* 4, 225–439. Berlin, New York: Mouton de Gruyter.
Washo	Jacobsen, William. 1964. *A Grammar of the Washo Language*. Berkeley, University of California dissertation.
Welsh	King, Gareth. 1993. *Modern Welsh. A Comprehensive Grammar*. London, New York: Routledge.
Yapese	Jensen, John B. I. & Defeg, Raphael. 1977. *Yapese Reference Grammar,* (PALI Language Texts Micronesia). Honolulu: University of Hawaii Press.
Yawa	Jones, Linda K. 1986. The Question of Ergativity in Yawa, a Papuan Language. *Australian Journal of Linguistics* 6, 37–56.
Yessan-Mayo	Foreman, Velma. 1974. *Grammar of Yessan-Mayo,* (Language Data, Asian-Pacific Series 4). Ukarumpa, Papua New Guinea: Summer Institute of Linguistics.
Yimas	Foley, William A. 1991. *The Yimas Language of Papua New Guinea*. Stanford: Stanford University Press.
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Appendix B: Map of the sample languages

Note: Languages in the WALS, chapter "48A: Person Marking on Adpositions" with the value "pronouns only" (Bakker 2013)